THELMA

TEST REPORT NO.: 20465-005

Test performed by: .....

Sign

Testing of sleeping bags according to EN 13537

Test Summary

TEST REFERENCES	
Test object:	Bask, Model: KARAKORAM-850 FP-XL, art. #1701a
Test Reference No.:	20465-005
Date of report:	2005-06-13

THERMAL INSULATION (m^2K/W)		
Complete bag	Local insulation	
R_c		
1.455	Front torso:	2.940
	Back torso:	1.324
	Feet:	0.708
$R_{c,eff}$		
0.952		

TEMPERATURE LIMITS (°C)					
		$T_{comfort}$ 1)	T_{limit} 2)	$T_{extreme}$ 3)	$T_{maximum}$ 4)
Comfort front:	-60.2				
Comfort back:	-9.1	**-13.2**	**-21.3**	**-43.6**	**3.6**
Comfort feet:	10.4				

1) *Lower limit of the comfort range down to which a sleeping bag user with a relaxed posture such as lying on the back is globally in equilibrium an just not feeling cold (related to standard woman and in standard condition of use)*

2) *Lower limit of which a sleeping bag user with a rolled-up body posture is globally in thermal equilibrium and just not feeling cold (related to standard man and in standard conditions of use)*

3) *Lower extreme temperature where the risk of health damage by hypothermia occures (related to standard woman and in standard conditions of use)*

4) *Upper limit of comfort range; the temperature up to which a partially uncovered sleeping bag user (standard man) just does not perspire too much*

THELMA

TEST REPORT NO.: 20465-005

Thermal Insulation measured by Manikin

Technical set-up and measurements

TEST REFERENCES			
Test object:	Bask, Model: KARAKORAM-850 FP-XL, art. #1701a		
Test Reference No.:	20465-005		
Date of test:	2005-04-20		
Size - test object:	215x81	cm	*(size as stated by manufacturer)*
Weight - test object:	2.13	kg	*(weight of test object only - measured by Thelma*
Weight of down:	1150	g	*(as stated by manufacturer)*
Down fill power	850 max	g	*(as stated by manufacturer)*

Measuring conditions			
Ambient conditions		The thermal manikin	
Ambient temperature:	-20.2 °C	Manikin:	"LOUISE" (20 segments)
Radient temperature:	-20.2 °C	Size - Surface	1.48 m^2
Relative humidity:	49 %	"Skin" temperature:	34 °C
Wind speed:	0.35 m/s	Manekin position:	Lying on its back - arms alongside
Insulation matress:	Mil. type, 12 mm (grey/white)	Manekin clothing:	Two piece tracksuit and knee long socks
		Calculation method:	Serial

Measurements (results)

No. of measurements: 3

	Average	Test1	Test2	Test3	
Total insulation (R_c):	1.455	1.453	1.449	1.464	m^2K/W
Local insulation					
- torso front:	2.940	2.935	2.903	2.991	m^2K/W
- torso back:	1.324	1.321	1.322	1.330	m^2K/W
- feet:	0.708	0.743	0.679	0.705	m^2K/W

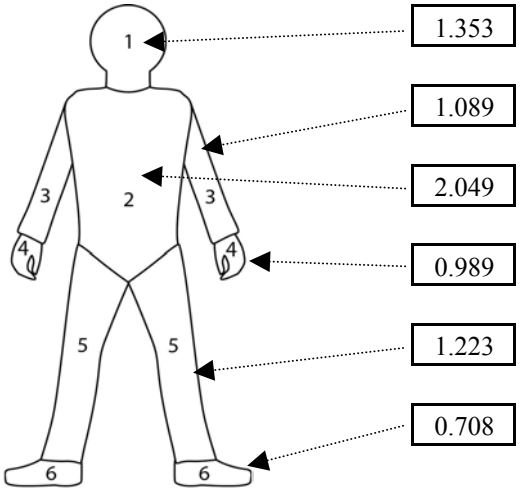
THELMA

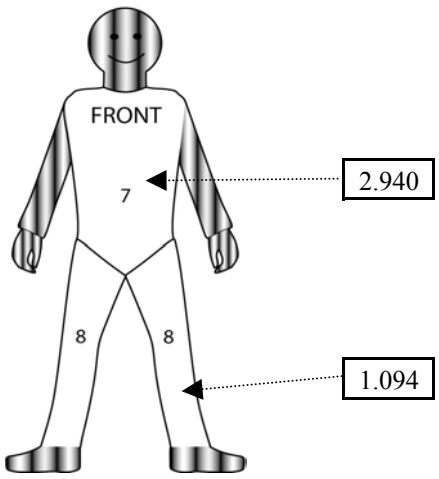
Informative Appendix

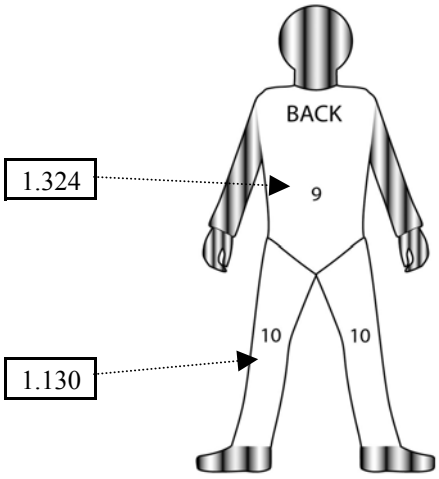
Thermal insulation (in m^2K/W) for different body parts

Test object:	Bask, Model: KARAKORAM-850 FP-XL, art. #1701
Test Reference no	20465-005
Date of test:	2005-04-20

1 *Head*
2 *Torso*
3 *Arms*
4 *Hands*
5 *Legs (thigh + calf)*
6 *Feet*
7 *Front torso*
8 *Front legs*
9 *Back torso*
10 *Back legs*







THELMA

Informative Appendix

Detailed data for all body parts

Test object:	Bask, Model: KARAKORAM-850 FP-XL, art. #1701
Test Reference no	20465-005
Date of test:	2005-04-20

Environmental test temperature: -20.2 °C

Sec. no.:	Body section	Body sec. surface (m^2)	Area-factor	T (°C)	Test 1 H (W/m^2)	Test 2 H (W/m^2)	Test 3 H (W/m^2)	Avg. H (W/m^2)
1	Left foot	0.0430	0.03	34.0	68.2	77.6	73.8	73.2
2	Right foot	0.0430	0.03	34.0	78.4	82.2	80.3	80.3
3	Left leg	0.0900	0.06	34.0	60.8	68.2	70.0	66.4
4	Right leg	0.0900	0.06	34.0	65.4	71.2	71.8	69.5
5	Left thigh, front	0.0800	0.05	34.0	39.9	40.6	41.4	40.6
6	Right thigh front	0.0830	0.06	34.0	38.8	33.4	35.8	36.0
7	Left thigh back	0.0800	0.05	34.0	30.6	31.4	29.8	30.6
8	Right thigh back	0.0830	0.06	34.0	44.8	43.2	44.3	44.1
9	Pelvis front	0.0550	0.04	34.0	17.6	16.1	16.9	16.9
10	Croutch back	0.1100	0.07	34.0	41.0	40.7	40.1	40.6
11	Face - neck	0.0750	0.05	34.0	37.4	37.8	35.5	36.9
12	Crown	0.0500	0.03	34.0	45.4	45.2	47.3	46.0
13	Left hand	0.0380	0.03	34.0	65.5	71.4	53.7	63.6
14	Right hand	0.0370	0.03	34.0	45.8	42.8	55.3	48.0
15	Left arm	0.0500	0.03	34.0	57.5	58.0	58.4	58.0
16	Right arm	0.0505	0.03	34.0	61.9	61.2	58.7	60.6
17	Left shoulder	0.0730	0.05	34.0	44.4	42.1	44.0	43.5
18	Right shoulder	0.0780	0.05	34.0	47.4	47.8	44.2	46.5
19	Chest	0.1400	0.09	34.0	18.9	19.9	18.6	19.1
20	Back	0.1300	0.09	34.0	41.1	41.3	41.3	41.2

T: Skin temperature (°C) of actual section

H: Heating power (W/m^2) supplied to the actual section to achieve the actua skin temperature *(Note! Lower values indicate better thermal insulation than higher values)*